

**Notice of Allowability**

Application No.

10/721,078

Examiner

Christina Johnson

Applicant(s)

PULIKOTTIL ET AL.

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed 11/26/03 and the telephone interview of 9/27/04.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>2/25/04, 11/26/03</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material  | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Jeff Wilson on September 27, 2004.

The application has been amended as follows:

Claim 1 (Amended):

A process for preparing a hydrotreating catalyst composition [which comprise of] comprising a composite carrier having an alumina part and a zeolite part wherein active metal belonging to group VIB of the periodic table and active metal belonging to Group VIII of the periodic table, each having a particle size less than about 50 Å, are being preferentially supported on the alumina part of the composite carrier, and useful for desulfurization of [gasoils] gas oils, said process comprising the steps of:

- (a) impregnating a chelated metal solution containing at least one group VI B and at least one group VIII metal on to an alumina support, optionally in presence of a complexing agent;
- (b) flash drying the metal impregnated alumina support of step (a);
- (c) ball milling the flash dried metal-impregnated alumina support of step (b);

(d) mixing the ball-milled metal-impregnated alumina support of step (c) with USY zeolite;

(e) ball milling the mixture of step (d);

(f) adding to the ball milled mixture of step (e) a phosphorous source;

(g) aging the mixture of step (f) for a time period ranging between about 1 to 5 hours, and

(h) molding, drying and calcining the mixture of step [(f)] (g) to obtain the hydrotreating catalyst composition.

Claim 25, line 2, "preferably" has been deleted.

Claim 33, line 2, "gasoids" has been changed to - - gas oils - -.

Claim 34 (Amended):

A process as claimed in claim 1, wherein the hydrotreating catalyst produces [gasoil] gas oil having less than about 50-ppm sulfur from a [gasoil] gas oil feedstock having about 1 wt % sulfur content under commercial operating conditions.

2. The following is an examiner's statement of reasons for allowance: the prior art of record does not teach or suggest a process for preparing a catalyst comprising a carrier composed of zeolite and alumina, having a metal of group VIB and VIII preferentially supported on the alumina and having particle sizes less than about 50 angstroms, wherein the process comprises steps (a) - (c), in combination with steps (d) and (f).

McVicker et al. (US 5,897,768) is regarded by the examiner as the closest prior art. The reference teaches a catalyst system comprising a hydrodesulfurization catalyst comprising a group VI and group VIII metal and a solid acid catalyst such as zeolite Y (column 2, lines 35-45, column 3, lines 60-68, column 4, lines 1-10 and 45-60). The active metals may be added to the catalyst by impregnating a chelated metal solution (column 4, lines 1-10). The reference teaches that the system may be a physical mixture or in staged beds (column 2, lines 45-50 and Examples). However, the reference does not disclose that the formation of a catalyst composite by mixing and ball-milling the acid catalyst with the hydrodesulfurization catalyst followed by molding, the addition of phosphorus, aging, or the size of the catalytic metal, and provides no motivation to arrive at the specific process claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


McCandlish et al. (US 4,663,023) and Benard et al. (US 2004/0144691) disclose the preparation of catalysts by impregnation of chelated metal solutions.

Keville et al. (US 5,378,671), Hirano et al. (US 4,789,654), and Stover et al. (US 3,620,964) disclose catalyst compositions containing Y zeolite, alumina, and metals of group VI and VIII.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Christina Johnson  
Patent Examiner  
Art Unit 1725  
9/27/04

CAJ  
September 27, 2004